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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,883	10/31/2001	Sig Harold Badt JR.	135840	7523

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INTELLECTUAL PROPERTY DEPARTMENT
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EXAMINER	
SHAH, CHIRAG G	

ART UNIT	PAPER NUMBER
2664	

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/003,883	BADT, SIG HAROLD	
	Examiner	Art Unit	
	Chirag G. Shah	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 16-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *12-15* is/are allowed.

6)☒ Claim(s) *1,16 and 20* is/are rejected.

7)☒ Claim(s) *2-11,17-19 and 21-30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 rejected under 35 U.S.C. 102(e) as being anticipated by Lyon (U.S. Patent No. 6,721,273).

Regarding claim 1, Lyon discloses in **fig. 1** of a packet switch **[see fig. 1, switch 10]** comprising:

one or more output queues **[as disclosed in fig. 1, output buffer 24]** for temporarily storing packets **[storing cells as disclosed in col. 5, lines 30-35]** to be output from the packet switch **[output buffer stores cells to be outputted, as disclosed in col. 5, lines 30-35];**

one or more input ports **[see fig. 1, plurality of input ports 14a to 14m]** each comprising one or more input queues **[a plurality of input buffers 20a to 20n, see fig. 1]** for temporarily storing received packets **[each input buffer 20a has a cell input and a cell output for receiving and transmitting cells, see col. 7, lines 20-25]**, wherein each input queue **[20a to 20n of fig. 1]** is associated with one of said output queues **[one buffer 24 of the respective output port, see col. 7, lines 55-65]** and wherein each output

queue is associated with input queues from different input ports **[as disclosed in col. 7, lines 55-65, the input buffer 20a in each of the input ports 14a to 14m, is associated with the output port 16a (which has the output buffer 24)** *clearly establishing that each output buffer 24 of output port 16a is associated with input queues 20a from different imports ports 14a to 14m*];

a matrix **[switching core 12, see fig. 1]** for passing information **[cell traffic]** between said inputs queues **[a plurality of input buffers 20a to 20n, see fig. 1]** and said output queues **[output buffer 24 associated with output ports 16a to 16n, see fig. 1];**

control circuitry **[Traffic Flow Controller 100, fig. 1]** for controlling the rate of change of a transfer rate between associated input queues and output queues **[as disclosed col. 8, lines 19-38, when the number of cells in the set of output queue surpasses a flow control threshold, the Traffic Flow Controller (TFC) 100 sends a flow control message to cause the scheduler 50, in input buffers associated with the congested output port** ***to change a transfer rate between associated input queues and output queues*** **by stop sending all cells to that output port].**

3. Claim 20 rejected under 35 U.S.C. 102(e) as being anticipated by Jones et al. (U.S. Patent No. 2003/0058802), hereinafter referred as Jones.

Regarding claim 20, Jones discloses in **fig. 5** a method of passing packets between input ports **[Input Port 514 and 518, fig. 5]** and output ports **[plurality of output Port j 552, fig. 5]** of a packet switch **[packet switching fabric 540 inside a router, fig. 5]**, wherein each output port **[552, fig. 5]** has one or more output queues **[queue 554, fig. 5]**

for temporarily storing packets **[packet s, see paragraph 0037]** to be output from the packet switch **[packet switching fabric 540 inside a router, fig. 5]** and each input port **[Input port 514, fig. 5],** has one or more input queues **[522, 524 input queues, fig. 5]** for temporarily storing received packets, each input queue **[522, 524, fig. 5]** being associated with one of said output queues **[a plurality of input ports sending data packet to a shared output port 552, see fig. 5 and paragraph 0037, lines 1-6]**, comprising the steps of:

transferring packets **[as disclosed in paragraph 0037]** between said input queues **[input queue 522, 524, fig. 5]** and associated output queues **[output queue 554, fig. 5]** in accordance with a calculated transfer rate **[calculated transfer rate *u*, as disclosed in paragraph 0037, lines 9-14]** for each pair of associated input **[input queue 524, fig. 5]** and output queues **[output queue 554, fig. 5]** *Note: the calculation of* ***how*** *the transfer rate u is calculated is disclosed in paragraph 0025 and 0028, u is calculated based on receiving a proportional fair rate from the output queue based on a request;* and

periodically **[at period time intervals, paragraph 0025, lines 7-8]** calculating a rate of change of the transfer rate between each of said pairs **[as disclosed in paragraph 0025, lines 5 to paragraph 0028, line 10, at periodic time intervals, *u* is calculated by each input queue upon sending a desired rate to the output queue, the output queue calculates the fair proportional rate and sends to each input queue its proportional rate, if the proportional rate is same (indicative of a calculated 0 rate change), then the sending rate stays the same]**; and

changing the transfer rate in accordance with the rate of change **[as disclosed in paragraph 0028, lines 1-10, the output queue calculates the fair proportion rate and sends to each input queue its proportional rate, if the proportional rate is different from the present actual sending rate, then the input queue modifies (changes) its present actual sending rate to the received proportional fair rate]**.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim16 rejected under 35 U.S.C. 103(a) as being unpatentable over Kulkunte et al. (U.S. Patent No. 6118761), hereinafter referred as Kukunte in view of Jones et al. (U.S. Pub No. 2003/0058802), herein after referred as Jones.

Regarding claim 16, Kalkunte discloses of a **network 10 in figure 1** comprising:

a plurality of interconnected packet nodes **[packet switch 10 and network nodes 14-1 to 14-4, see fig. 1]**, the packet switch **[packet switch 10, fig 1]**comprising:

input **[Rx 18-1 to 18-4, fig. 1]** and output queues **[Tx 20-1 to 20-4]** where output queues of one switch **[20-1 to 20-4 of switch 10, fig. 1]** are coupled to the associated input queue of

another node **[14-1 to 14-4, fig. 1]** ***Note: Kalkunte discloses according to col. 4, lines 44-47, network node 14 may be implement as a router;***

control circuitry **[rate control 32]** for controlling the rate of change of a transfer rate from an output queues to an associated input queue of another switch **[as disclosed in col. 5, lines 13-26 and col. 6, lines 55-60, the rate controller 32 generates rate control frames upon detecting a congestion condition in the output buffer 20-4, the network switch 12 outputs rate control frames from the remaining network switch ports 20-1 to 20-3 to the respective network nodes, where each rate control frame causes the corresponding network node to operate according to a prescribed bandwidth value (rate)].**

Kalkunte discloses of a plurality of interconnected packet nodes, one being a switch and the other may be a network node (router), however Kalkunte fails to disclose the node (router) having the switching functionality and an associated input queue of a switch for receiving controlling rate.

Jones discloses in figure 5 of a router 510, which has a switching functionality, having input ports I 514 and 518 comprising multiple queues 522, 524, 526, the ports are connected through a switching fabric 540 to an output port j 522. Jones further discloses in paragraph 0037 of packet arriving at the router device at 10Gbps, which is then segmented to an associated queue 524. Thus, the router having the functionality of a switch receives incoming packet arriving on data line at a transfer rate of 10Gbps to the associated queue. Therefore, it would have been obvious to one of ordinary skills in the art at the time of the invention to modify the teachings of Kalkunte to include the router having switching features including an associated queue for

receiving incoming packets at a transferred rate as taught by Jones. One is motivated as such in order to efficiently and fairly control data flows *(Jones, paragraph 0008)*.

Allowable Subject Matter

6. Claims 2-11, 17-19 and 21-30 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 2, 17, and 21, Prior Art fails to disclose wherein the control circuitry computes an acceleration value for each input queue in combination with other limitations set forth in the respective claim.

Regarding claim 30, Prior Art fails to disclose wherein the transfer rate for each input queue is indicative of the probability of the input queue making a request to send a packet in combination with other limitations set forth in the respective claim.

7. Claims 12-15 allowed.

Regarding claim 12, Prior Art fails to disclose one or more input ports each comprising a control circuitry for selectively generating requests, on each cycle, from a group of input queues that have packets to send on that cycle, responsive to a calculated transfer rate for that input queue and a server for selecting, on each cycle, one or more queues from the group to output a packet in combination with other limitations set forth in the respective claim.

Conclusion

Any response to this action should be mailed to:

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Or faxed to:

(703)305-3988, (for formal communications intended for entry)

Or:

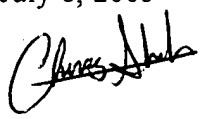
(703)305-3988 (for informal or draft communications, please label "Proposed" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2021 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chirag G. Shah whose telephone number is 571-272-3144. The examiner can normally be reached on M-F 6:45 to 4:15, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cgs
July 6, 2005



Chirag Shah